

In the Specification:

Published paragraph 0007 has been amended as follows:

A surgical instrument holder is made up of a head assembly and a drive spindle assembly. The head assembly has a shank with a first driveable end and second coupling end. The second end has a coupling device having an interface for receiving a surgical instrument. The instrument is held in functional assembly to the shank by a releasable locking mechanism. The releasable locking mechanism is made up of a locking ring slideably disposed about the shank, a spring biased against the coupling device by the locking ring, and a connection ring device retaining the locking ring in a fixed position during use. The drive spindle assembly is connected to the head assembly so as to transmit torque therethrough. The spindle assembly has an elongated drive spindle, high-precision bearings and a cylindrical tube. The drive spindle is releasably mounted to an end of the spindle assembly and is supported for rotation within the cylindrical tube by the high-precision bearings disposed therebetween and held in place at least in part by the shank. The bearings precisely control the position of a surgical instrument affixed thereto. The connection device provides a common quick-release connection with the head assembly and the drive spindle assembly, such that unlocking of the connection device enables quick disassembly of the connection ring device, spring, locking ring, and drive spindle assembly for cleaning and component sterilization.

Published paragraph 0009 has been amended as follows:

To this end, the instrument holder according to the invention has a quick release head which holds the instrument, the head being releaseably connected to a precision spindle supported in rotation by bearings mounted between the shaft and an outer bearing tube. The spring bears on a locking ring sliding on the shank, and the shank and the locking ring have manually activated means of connection by rotation of the connection ring in such a way that such motion permits release of the connection ring thereby allowing the locking ring component, the spring and the connection ring to slide freely on the shank. This almost instantaneous disassembly of the component parts of the instrument holder allow it to be thoroughly and quickly cleaned.

Published paragraph 0011 has been amended as follows:

In an advantage of the invention, the fastening and release of the locking ring takes place instantaneously, which represents a time savings. This makes it possible to ensure that a complete kit of instruments is not rendered unusable because of a single component being inoperative.

Published paragraph 0028 has been amended as follows:

Referring now to FIGS. 1A-1F, and 2A-2B, a surgical instrument holder 10 has a spindle assembly 42, a cylindrical shank 12 at one end of which a head 20 is fixed which is essentially identical to the head described in U.S. Pat. No. 5,658,290, the contents content of which are [[is]] incorporated by reference thereto. The shank 12 has a driveable end 14 and a coupling end 16. The coupling end 16 is made up of a coupling device 20 having an interface 22 for receiving a surgical instrument 24, shown in FIG. 3. The surgical instrument 24 is held in functional assembly to the shank by a releasable locking mechanism 26. The locking mechanism 26 includes a locking ring 30 slideably disposed about the shank, a spring 32 biased against the coupling device 20 by the locking ring, and a connection ring device 34 retaining the locking ring in a fixed position during use. The spring 32 is preferably a helical compression spring.

Published paragraph 0029 has been amended as follows:

The shank 12 is releasably mounted to an end 36 of an elongated drive spindle 40 of a drive spindle assembly 42. The drive spindle assembly 42 has the drive spindle 40, high-precision bearings 44, 120, 122 and a cylindrical tube 46. The drive spindle 40 is supported for rotation within the cylindrical tube 46 by the high-precision bearings 44, 120, 122 disposed therebetween. The bearings 122 are retained by the shank 12. The bearings 44, 120, 122 precisely control the position of a surgical instrument 24 relative to position sensors 124 mounted on the tube. The end 36 of the drive spindle 40 has a keyway 50 which cooperates with a key or pin 52 on the shank 12 in order to impart a torque into the shank 12 when driving an instrument 24. The shank 12 is locked on the drive spindle 40 via the balls 106, which lock into divots 48 upon actuation by the common connection ring devicee 34, thereby providing a common quick-release connection with the shank 12. Thus, unlocking of the connection ring devicee 34 enables quick disassembly of the connection ring devicee, spring 32, locking ring 30, and drive spindle assembly 42 for cleaning and component sterilization.

Published paragraph 0030 has been amended as follows:

The locking ring 30 of the releasable locking mechanism 26 is moveable in a locking direction to lock the instrument 24 onto the interface 22. The locking direction is toward the coupling end 16 of the shank 12.

Published paragraph 0031 has been amended as follows:

The connection ring device 34 includes at least one pin 54 mounted in a coupling sleeve 56. The spring 32 is biased against the coupling sleeve 56 by the locking ring 30. The sleeve 56 is slideable about the shank 12 so as to operate a ball-detent 60.

Published paragraph 0032 has been amended as follows:

The connection ring 34 locks over the shank 12. Optionally, the shank 12 may have a smaller diameter, or smaller local diameter (for example, by longitudinal flats cut onto the cylindrical surface of the shaft) than the coupling end, so that when the locking ring 30 is unlocked and slid back along the shank, cleaning access to all surfaces of the locking mechanism is facilitated.

Published paragraph 0034 has been amended as follows:

This head 20 has a central recess 84. ~~the~~ The head forms forming a crown 88 around this recess. This crown 88 has four bayonet catches 22 diametrically opposite in pairs. A reamer 24 analogous to the reamer shown and described in U.S. Pat. No. 5,658,290 is fixed in these catches 22. The reamer 24 is locked in the catches 22 by [[an]] the annular locking ring ~~component~~ 30 equipped with a plate 90 having four parallel fingers 92 which pass through the head 20 in order to close the bayonet catches 22, in a manner as is described in U.S. Pat. No. 5,658,290.

Published paragraph 0035 has been amended as follows:

The locking ring component 30 slides on the shank 12. At least one bayonet catch 94 is formed at the end 96 of the shank 12 remote from the head 20. These catches 22 are preferably at least two in number and diametrically opposed to facilitate assembly, as is explained below. Also arranged around this shank 12 is a helical spring 32 which engages in a frustoconical widened part 100 of the locking ring component 30 and bears against this locking ring component, and which slides freely on the shank 12. The assembly of the instrument holder head 20 is completed by a connection ring 34 which also slides on the shank 12 and is equipped internally with a radial stud 54 that is captured in a keyway 102, thus permitting the connection ring to move axially along the shank 12, and eventually into the bayonet recess 94.

Published paragraph 0036 has been amended as follows:

The locking ring device 30 is disposed in the coupling end 16 of the shank 12. The locking ring device 30 activates at least one ball-detent 60. Preferably Preferrably, the locking ring device 30 activates one or more circumferentially spaced apart ball-detents 60.

Published paragraph 0037 has been amended as follows:

The pin 54 of the connection ring device 34 cooperates with a guide slot 70 and bayonet landing 94 to lock the connection ring 34 device on the shaft 12.

Published paragraph 0038 has been amended as follows:

The ball-detent 60 is received into a recess 110 in the instrument bolder, the ~~locking component~~ connection ring 34 sliding over the ball detent 60 to bias a ball 106 into a recess 48 in the drive spindle 46 to lock the shank 12 onto the drive spindle in a manner to lock the assembly 42 including the bearings 44 in place.

Published paragraph 0039 has been amended as follows:

Starting from the disassembled position shown in FIGS. 1A-1B, and in order to assemble the instrument holder 10, the locking ring component 30 is brought under the head 20, engaging its locking fingers 92 through the head. Then, with the connection ring 34, the spring 32 is pushed against the locking ring component 30 and this spring is compressed, at the same time turning the connection ring 34 axially counterclockwise until its stud 54 engages in the bayonet catch 94 in which the connection ring 34 locks by holding the connection ring 34 which is pushed rearward by the spring 32. The instrument holder 10 can then be used as is described in U.S. Pat. No. 5,658,290. The frustoconical widened part 100 provides a grip for the thumb and index finger for pulling the locking ring component 30 back counter to the action of the spring 32 in order to release the instrument 24 fixed on the instrument holder 10.

Published paragraph 0040 has been amended as follows:

Note that the connection ring 34 has two opposing channels or recesses 104 which provide clearance for ball-detents 60 during assembly and disassembly of the head assembly 68. This is because the balls 106 do not retract all the way into corresponding ball recesses 110 in the shank 12 as they are blocked by a spherical end portion 112 at the bottom of the recess 110. They may also be retained against disassembly by staking the edge of the recess 110 after the ball 106 is placed therein. When the connection ring 34 is turned, however, the opposing recesses 104 are no longer aligned with the balls 106, thereby enabling the shoulder 114 to be biased against the balls 106 by the force of the spring 32, thus pressing the balls further into their recesses 110 such that the ends of the balls protrude into divots or seats 48 (shown in FIG. 4A) in the end of the spindle 40 which is aligned under the balls by a positioning shoulder and the opposing longitudinally oriented keyways 50 into which pins 52 engage on assembly.

Published paragraph 0041 has been amended as follows:

Conversely, in order to disassemble the instrument holder 10, it suffices to first push the connection ring 34 forward counter to the action of the spring 32. This removes the wedging bias on the balls 106 into seats 48 in the end of the spindle 40, the bias otherwise removing play in the assembly. The surgeon then turns the connection ring axially clockwise to align the balls 106 with the opposed clearance recesses 104, to enable the balls 106 to further retreat from the recess 110, so as to enable the user to disconnect the spindle assembly 42 from the head assembly 68 by drawing it out as the connection ring 34 is held against the bias of the spring 32. Concurrently, the turning of the connection ring 34 in the clockwise direction removes the stud 54 from the bayonet catch 94, thus enabling the surgeon to remove the connection ring 34 from the shank 12, and then the spring 32, followed by the locking ring component 30 as well.

Published paragraph 0042 has been amended as follows:

As is shown in FIG. 1B, the connection ring, spring and locking ring components 34, 32 and 30, respectively, can be completely removed from the shank 12. Note that the connection ring 34 could also be removably fastened to the shank 12 by screwing, that is to say having a screw thread (not shown) in the connection ring 34 which threads onto [[to]] corresponding threads (not shown) on the shank 12. Note as well that the head 20 and the fingers 92 are only one example of many alternative means of connecting to an instrument 24.

Published paragraph 0048 has been amended as follows:

The fastening and release of the connection ring 34 and thus the assembly/disassembly of the coupling head 68 and spindle assembly 42 takes place instantaneously, which represents a time savings. This helps ensure that a complete kit of instruments 24 is not rendered unusable because of a single component is blocked or inoperative.

Published paragraph 0049 has been amended as follows:

In an advantage of the invention, the fastening and release of the connection ring takes place instantaneously, which represents a time savings. This makes it possible to ensure that a complete kit of instruments is not rendered unusable because of a single component being inoperative.